Supplement to *Studies in History and Philosophy of Modern Physics*
Volume 29, Number 1

Studies in History and Philosophy of Modern Physics 1997

Volume 28

List of Contents and Author Index

PERGAMON

Studies in History and Philosophy of Modern Physics

Editors
Jeremy Butterfield
Senior Research Fellow
University of Oxford, U.K.

Peter Galison
Professor of History of Science
and of Physics
Harvard University, U.S.A.

Michael Redhead
Department of History and Philosophy
of Science
University of Cambridge, U.K.

Sam Schweber
Department of Physics
Brandeis University, U.S.A.

Andrew Warwick
Lecturer in History of Science
Imperial College, London, U.K.

Associate Editors
Guido Bacciagaluppi
University of Oxford, U.K.

Constantine Pagonis
University of Cambridge, U.K.

Editorial Advisory Board Members

Mara Beller, Jerusalem, Israel
Harvey Brown, Oxford, U.K.
Laurie M. Brown, Evanston, IL, U.S.A.
Jed Buchwald, Cambridge, MA, U.S.A.
Tian Yu Cao, Boston, MA, U.S.A.
Nancy Cartwright, London, U.K.
Catherine Chevalley, Paris, France
Rob Clifton, Pittsburgh, PA, U.S.A.
James T. Cushing, Notre Dame, IN, U.S.A.
Olivier Darrigol, Paris, France
Dennis Dieks, Utrecht, The Netherlands
John Earman, Pittsburgh, PA, U.S.A.
Arthur Fine, Evanston, IL, U.S.A.
Bas van Fraassen, Princeton, NJ, U.S.A.
Gian Carlo Ghirardi, Trieste, Italy
Daniel Greenberger, New York, U.S.A.
Basil Hiley, London, U.K.
Chris J. Isham, London, U.K.
Clive W. Kilmister, Lewes, U.K.
David B. Malament, Chicago, IL, U.S.A.
N. David Mermin, Ithaca, NY, U.S.A.
John D. Norton, Pittsburgh, PA, U.S.A.
Roger Penrose, Oxford, U.K.
Dominique Pestre, Paris, France
Itamar Pitowsky, Jerusalem, Israel
Jürgen Renn, Berlin, Germany
Abner Shimony, Wellesley, MA, U.S.A.
Lawrence Sklar, Ann Arbor, MI, U.S.A.
John Stachel, Boston, MA, U.S.A.
Paul Teller, Davis, CA, U.S.A.
Roberto Torretti, Santiago, Chile
Steven Weinberg, Austin, TX, U.S.A.

Publishing Office: Elsevier Science Ltd, Bampfylde Street, Exeter EX1 2AH, U.K. *Tel*: (+1392) 251558; *Fax*: (+1392) 425370.

Advertising Offices: (North America) Elsevier Science Inc., 655 Avenue of the Americas, New York, NY 10010, U.S.A. (Rest of the World) Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. *Tel*: (+1865) 843000, *Fax*: (+1865) 843010.

Frequency (1998): Published in March, June, September and December

Annual Institutional Subscription Rates 1998: Europe, The CIS and Japan, NLG523.00; all other countries, US$300.00. Associated Personal Subscription rates are available on request for those whose institutions are library subscribers. Dutch Guilders prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Concessional subscription rates are also available for individual members of several societies (see back of journal for details).

Any enquiries relating to subscriptions should be sent to: **The Americas:** Elsevier Science Customer Support Department, P.O. Box 945, New York, NY 10010, U.S.A. [*Tel*.: (+1)212-633-3730/1-888 4ES-INFO; *Fax*: (+1) 212-633-3680; *e-mail*: usinfo-f@elsevier.co.com]. **Japan:** Elsevier Science Customer Support Department, 9–15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106, Japan [*Tel*.: (+81) 3-5561-5033; *Fax*: (+81) 3-5561-5047; *e-mail*: info@elsevier.co.jp]. **Asia Pacific (*excluding Japan*):** Elsevier Science (Singapore) Pte Ltd, No. 1 Temasek Avenue, 17-01 Millenia Tower, Singapore 039192 [*Tel*.: (+65) 434-3727; *Fax*: (+65) 337-2230; *e-mail*: asiainfo@elsevier.co.com.sg]. **Rest of the World:** Elsevier Science Customer Service Department, P.O. Box 211, 1001 AE Amsterdam, The Netherlands [*Tel*.: (+31) 20-485-3757; *Fax*: (+31) 20-485-3432; *e-mail*: nlinfo-f@elsevier.nl].

Back Issues: Back issues of all previously published volumes are available direct from Elsevier Science Offices (Oxford and New York). Complete volumes and single issues can be purchased for 1993–1997. Earlier issues are available in high quality photo-duplicated copies as complete volumes only.

PERIODICALS POSTAGE PAID AT RAHWAY, NJ. *Studies in History and Philosophy of Modern Physics* (ISSN 1355-2198) is published 4 issues per year in March, June, September and December, by Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. The annual subscription in the U.S.A. is $300.00. *Studies in History and Philosophy of Modern Physics* is distributed by Mercury Airfreight International Ltd, 2323 Randolph Avenue, Avenel, NJ 07001-2413. POSTMASTER: Please send address corrections to *Studies in History and Philosophy of Modern Physics*, c/o Elsevier Science Regional Sales Office, Customer Support Department, 655 Avenue of the Americas, NY 10010, U.S.A.

Copyright © 1998 Elsevier Science Ltd

Contents

Number 1 March

Articles

NICHOLAS A. M. MONK 1 Conceptions of Space–Time: Problems and Possible Solutions

F. A. MULLER 35 The Equivalence Myth of Quantum Mechanics—Part I

MARK HOGARTH 63 A Remark Concerning Prediction and Space-time Singularities

XAVIER ROQUÉ 73 The Manufacture of the Positron

Essay Reviews

N. DAVID MERMIN 131 Quantum Theory: Concepts and Methods

THOMAS BREUER 137 What Theories of Everything Don't Tell

Obituary

HARVEY BROWN 145 Robert Weingard 1942–1996

NUMBER 2 June

Articles

GORDON BELOT and JOHN EARMAN — 147 Chaos Out of Order: Quantum Mechanics, the Correspondence Principle and Chaos

E. G. ZAHAR — 183 Poincaré's Philosophy of Geometry, or does Geometric Conventionalism Deserve its Name?

F. A. MULLER — 219 The Equivalence Myth of Quantum Mechanics—Part II

VASSILIOS KARAKOSTAS — 249 The Conventionality of Simultaneity in the Light of the Spinor Representation of the Lorentz Group

YEMIMA BEN-MENAHEM — 277 Dummett vs Bell on Quantum Mechanics

Essay Reviews

ROBERTO TORRETTI — 291 From Physics to Metaphysics

B. J. HILEY — 299 Quantum Mechanics: Historical Contingency and the Copenhagen Hegemony by James T. Cushing

NUMBER 3 September

Articles

DANA FINE and ARTHUR FINE 307 Gauge Theory, Anomalies and Global Geometry: The Interplay of Physics and Mathematics

TIM BUDDEN 325 A Star in the Minkowskian Sky: Anisotropic Special Relativity

STEVEN FRENCH and JAMES LADYMAN 363 Superconductivity and Structures: Revisiting the London Account

ROBERT W. BATTERMAN 395 'Into a Mist': Asymptotic Theories on a Caustic

Essay Reviews

DARRIN W. BELOUSEK 415 Perspectives on Quantum Reality: A Critical Survey

MARA BELLER 421 'Against the Stream'—Schrödinger's Interpretation of Quantum Mechanics

Number 4 December

Articles

JAN HENDRICK SCHMIDT 433 Classical Universes Are Perfectly Predictable!

HENK W. DE REGT 461 Erwin Schrödinger, *Anschaulichkeit*, and Quantum Theory

DOMENICO COSTANTINI and UBALDO GARIBALDI 483 A Probabilistic Foundation of Elementary Particle Statistics. Part 1

Essay Reviews

PAUL TELLER 507 A Metaphysics for Contemporary Field Theories

KATINKA RIDDERBOS 523 A Point Outside Time?

K. KONG WAN 537 *The Quantum Theory of Measurement*

ROBIN LE POIDEVIN 541 Relative Realities

I Corrigendum

PII: S1355-2198(98)00001-X

Author Index

Batterman, R. W. 395
Beller, M. 421
Belot, G. 147
Belousek, D. W. 415
Ben-Menahem, Y. 277
Breuer, T. 137
Brown, H. 145
Budden, T. 325

Costantini, D. 483

De Regt, H. W. 461

Earman, J. 147

Fine, A. 307
Fine, D. 307
French, S. 363

Garibaldi, U. 483

Hiley, B. J. 299
Hogarth, M. 63

Karakostas, V. 249
Kong Wan, K. 537

Ladyman, J. 363
Le Poidevin, R. 541

Mermin, N. D. 131
Monk, N. A. M. 1
Muller, F. A. 35, 219

Ridderbos, K. 523
Roqué, X. 73

Schmidt, J. H. 433

Teller, P. 507
Torretti, R. 291

Zahar, E. G. 183

Origination and printing in Great Britain by Henry Ling Ltd, Dorchester, Dorset

ELSEVIER
SCIENCE

PLEASE MENTION THIS JOURNAL WHEN ANSWERING ADVERTISEMENTS